AN AC DRIVE SYSTEM TO REPLACE AN EXISTING DC DRIVE SYSTEM

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Abstract

DC commutator motor is the oldest motor but still the best performance motor. It has control simplicity and control accuracy although commutator motor has some inherent drawbacks due to its mechanical commutator. Normally, the older the motor, the higher the effects of some drawbacks.

This dissertation is based on "Replacing an old DC drive system with a new AC drive system" in order to eliminate prevailing practical problems arisen due to aging of the drive system. The DC drive system being less reliable, that results high down time of the relevant machine effecting loss in production. .

Briefing on new AC drive system, other than the existing control functions, some functional improvements are also adopted assuring far better running performance of the machine than present. Minimum maintenance, quick failure restore, minimizing down time and hence improved reliability are the key motivations of the project.

It is considered the maximum running speed of the machine for capacity selection of the motor and the AC drive. The required modifications in power and control wiring are introduced keeping operational part of the machine in such a way that, machine operator does not feel any difference while in operation. Same switches, selectors, pushbuttons are utilized as in the existing system.

Economic consideration of the proposed system against the existing system is discussed followed by the design. Improved power factor, reduced total harmonic distortion, improved efficiency and enhanced reliability of the machine contributes positive impact on the proposed system.

It is important to say that, this is much oriented at reliability improvement of the particular machine than the other sayings.